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### Revisiting the Open Access Citation Advantage for Legal Scholarship

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## Revisiting the Open Access Citation Advantage for Legal Scholarship\*

John R. Beatty\*\*

*Citation studies in law have shown a significant citation advantage for open access legal scholarship. A recent cross-disciplinary study, however, gave opposite results. This article shows how methodology, including the definition of open access and the source of the citation data, can affect the results of open access citation studies.*

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### Introduction

¶1 Scholarship exists to be used but, unfortunately, use is difficult to measure. Citations are the most visible and easily counted artifacts of use, and citation studies have become the bedrock of scholarship use studies. Because citations are the easiest measure of use and, therefore, usefulness, citation studies are an important measure in tenure review. Scholars pore over journal metrics to target the most-cited journals for their articles. They are always on the lookout for anything they can find that will lead to more citations. Outside of other reasons for open access publishing, there is an interest in whether open access will help scholars obtain more citations to their work.

¶2 Consequently, much discussion has centered around the citation advantage of open access journal articles. Citation studies, however, have reached little agreement. Their results vary depending on discipline, the population studied, and the definition of open access.<sup>1</sup> Atchison and Bull found that self-archived articles in

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1. See, e.g., Amy Atchison & Jonathan Bull, *Will Open Access Get Me Cited? An Analysis of the Efficacy of Open Access Publishing in Political Science*, 48 PS 129, 130 (2015); Philip M. Davis et al., *Open Access Publishing, Article Downloads, and Citations: Randomised Controlled Trial*, 337 BMJ 343 (2008) [hereinafter Davis]; Stephen Pinfield, *Making Open Access Work: The "State-of-the-Art" in Providing Open Access to Scholarly Literature*, 39 ONLINE INFO. REV. 604, 612 (2015).

political science were cited two-and-a-half times more often than those only available via toll access.<sup>2</sup> Davis found an increase in readership, but no effect on citation counts for open access articles in a set of medical journals.<sup>3</sup> Dorta-González et al. found no generalizable gold open access citation advantage in a total population study of the Web of Science core collection during 2009.<sup>4</sup> Salisbury et al. found that publications in fully open access journals of faculty at the University of Arkansas indexed in the Web of Science core collections from 2005 to 2015 were less likely to be cited than those in non-open access journals.<sup>5</sup>

¶3 A number of reasons have been hypothesized for the possible lack of citation benefit derived from open access scholarship. Gaulé and Maystre suggest that the slight citation advantage they found for open access articles in the hybrid journal *Proceedings of the National Academy of Sciences* was due to author self-selection.<sup>6</sup> Davis suggests although he and his colleagues found an increase in readership of the scientific articles they studied, the lack of an increase in citations was due to an increase in readership “outside of the community of core authors” of the scientific literature.<sup>7</sup> Similarly, Thelwall suggests that the difference between downloads and citation counts may be due to use by communities that do not publish research, like students or the general public, or publish in places not indexed by the citation database used (in that case, Scopus).<sup>8</sup> Plotin discusses the need for researchers to understand the scholarly culture of the discipline being studied to explain how and why it has or has not adopted open access, or whether it is likely to do so.<sup>9</sup> Davis and Walters hypothesize that the large citation advantage found in early studies was due to improper methodology.<sup>10</sup>

¶4 Davis and Walters also highlight one of the problems not only of citation studies but studies on scholarly literature use in general. Studies that look only at citations ignore the communities of those who use, but do not cite, the literature. They argue that the greatest value of open access is its potential to make scholarly information available to those communities.<sup>11</sup> Other kinds of utility are not studied, however, because they are harder to measure and of “less immediate value” than the traditional indicators of scholarly value.<sup>12</sup>

2. Atchison & Bull, *supra* note 1, at 133.

3. Davis, *supra* note 1, at 343.

4. Pablo Dorta-González, Sara M. González-Betancor & María Isabel Dorta-González, *Reconsidering the Gold Open Access Citation Advantage Postulate in a Multidisciplinary Context: An Analysis of the Subject Categories in the Web of Science Database 2009–2014*, 112 *SCIENTOMETRICS* 877, 879, 898 (2017) [hereinafter Dorta-González].

5. Lutishoor Salisbury, Anuradha Rai Chowdhury & Jeremy J. Smith, *Faculty Publications from a Research University: The Scholarly Impact of Open Access Versus Non-Open Access*, 36 *SCI. & TECH. LIBR.* 187, 189, 192 (2017) [hereinafter Salisbury].

6. Patrick Gaulé & Nicolas Maystre, *Getting Cited: Does Open Access Help?*, 40 *RES. POL'Y* 1332, 1337 (2011).

7. Davis, *supra* note 1, at 345.

8. Mike Thelwall, *Why Do Papers Have Many Mendeley Readers but Few Scopus-Indexed Citations and Vice Versa?*, 49 *J. LIBRARIANSHIP & INFO. SCI.* 144, 150 (2017).

9. Stephanie L. Plotin, *Legal Scholarship, Electronic Publishing, and Open Access: Transformation or Steadfast Stagnation*, 101 *LAW LIBR. J.* 31, 31–33, 2009 *LAW LIBR. J.* 2, ¶¶ 1–7.

10. Philip M. Davis & William H. Walters, *The Impact of Free Access to the Scientific Literature: A Review of Recent Research*, 99 *J. MED. LIBR. ASS'N* 208, 213 (2011).

11. *Id.* at 213–14.

12. *Id.* at 213.

¶5 But some researchers have attempted to quantify these other kinds of utility. Thelwall, for example, found that counts of Mendeley readers correlate with citation counts for individual journal articles.<sup>13</sup>

¶6 Although not 100 percent predictive, Mendeley reader counts appear earlier than citation counts, and therefore have some use as a metric.<sup>14</sup> Additionally, companies such as Altmetric and Plum Analytics have turned this type of research into products that collect a number of pre-citation events and attempt to turn them into metrics that supplement traditional citation metrics.

¶7 Very few citation studies have been conducted in law. Donovan and Watson found a clear benefit for green open access in their study of citations to the law journals published by the University of Georgia.<sup>15</sup> Twenty-two percent of the articles published from 1990 through 2007 in the studied publications were available in an open access version.<sup>16</sup> Those open access articles accrued 58 percent more citations than the non-open access articles.<sup>17</sup> Donovan (2014) conducted a follow-up study of 30 flagship law reviews, finding an average open access advantage of 53 percent over the same time period.<sup>18</sup> This later study also found that journals from the middle-ranked law schools received a greater increase in citations when their articles were openly available than did journals from the highest-ranked schools.<sup>19</sup>

¶8 Their conclusions are what one might expect, given earlier studies looking at citation patterns in law after the introduction of electronic research. Joergensen found that second-tier (lower-cited) journal articles were cited more frequently when full text was included in LexisNexis and Westlaw.<sup>20</sup> Similarly, Rumsey found that as international law journals became more available in electronic format, journals became more frequently cited than books, a reversal of earlier patterns.<sup>21</sup>

¶9 These studies all support the idea that legal scholarship is more likely to be cited when it becomes more available or more visible. Donovan (2014)'s finding that mid-tier open access journals experienced a larger increase in citations than the top-tier journals offers further support. If scholars are already reading the top journals, then further accessibility through open access will have a limited effect on citation. It may, however, increase readership by communities who are unlikely to produce scholarship that will lead to countable citations.<sup>22</sup> If mid-tier journals are not widely read but are publishing quality scholarship, the visibility boost from open access articles may lead to more citations.

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13. Thelwall, *supra* note 8, at 145. Mendeley is a research management and social network platform for sharing research.

14. *Id.* at 144–45.

15. James M. Donovan & Carol A. Watson, *Citation Advantage of Open Access Legal Scholarship*, 103 LAW LIBR. J. 553, 2011 LAW LIBR. J. 35.

16. *Id.* at 566, ¶ 40.

17. *Id.* at 569, ¶ 46.

18. James M. Donovan, Carol A. Watson & Caroline Osborne, *The Open Access Advantage for American Law Reviews*, 2015–03A EDISON 1, 8 (2014) [hereinafter Donovan (2014)].

19. *Id.* at 10–11.

20. John P. Joergensen, *Second Tier Law Reviews, Lexis and Westlaw: A Pattern of Increasing Use*, LEGAL REFERENCE SERVS. Q., 2002 no. 1, at 43, 50.

21. Mary Rumsey, *Gauging the Impact of Online Legal Information on International Law: Two Tests Symposium: 21st Century International, Foreign and Comparative Law Research Issues*, 35 SYRACUSE J. INT'L L. & COM. 201, 210 (2007).

22. Thelwall, *supra* note 8, at 150.

¶10 In stark contrast, Dorta-González found, in a total population study of articles indexed in Web of Science in all disciplines for the year 2009, that open access law journals were 40 percent *less* likely to be cited than journals that were not open access.<sup>23</sup>

¶11 This study aims to reconcile the difference between these two results. I suspected that the different methodologies were the cause of the vastly different results. My initial hypothesis was that the difference was largely due to the different definitions of open access. While this turned out to be one cause, other methodological choices also contributed to the size of the difference.

### The Problem in Law: Law Is Not Science

¶12 One problem with studies that examine citation of open access scholarly literature in multiple disciplines is that they do not take the scholarly culture of each discipline into account. The culture of each discipline, including its research methods, affects the extent to which it adopts new technology.<sup>24</sup> If a discipline is slow to abandon traditional library research, the immediate nonavailability of a particular source may not preclude its use. But if, for example, the members of a discipline are instead searching Google Scholar, they may be more likely to eschew unavailable sources in favor of the full-text ones immediately available. This suggests the one-size-fits-all approach of Dorta-González and others is less useful than studies within a single discipline, which can take culture into account. Moreover, these studies may be searching for an intrinsic citation advantage or disadvantage of open access that does not exist.

¶13 Law as a discipline in the United States has evolved differently than other disciplines.<sup>25</sup> Whereas most disciplines publish research in peer-edited journals, in law the vast majority of journals are edited by law students.<sup>26</sup> In the peer review model, professional or faculty editors choose which articles to publish.<sup>27</sup> Those articles are reviewed by faculty scholars, generally anonymous, who comment on the drafts.<sup>28</sup> The drafts are revised by the author, edited, and published.<sup>29</sup>

¶14 In the student-edited law review model, most of the journals are published by law schools and the journals are run by students.<sup>30</sup> Students choose the articles from the submissions received, often on the basis of the author's prestige or the

23. Dorta-González, *supra* note 4, at 886, 899.

24. See Plotin, *supra* note 9, at 33, ¶ 7; Carol A. Parker, *Institutional Repositories and the Principle of Open Access: Changing the Way We Think About Legal Scholarship*, 37 N.M. L. REV. 431, 444, n.79 (2007).

25. Michael W. Carroll, *The Movement for Open Access Law*, 10 LEWIS & CLARK L. REV. 741, 751 (2006).

26. James G. Milles, *Redefining Open Access for the Legal Information Market*, 98 LAW LIBR. J. 619, 629, 2006 LAW LIBR. J. 37, ¶ 31.

27. See, e.g., Richard Danner, *Open Access to Legal Scholarship: Dropping the Barriers to Discourse and Dialogue*, 7 J. INT'L COM. L. & TECH. 65, 67 (2011); *Frequently Asked Questions*, DIRECTORY OF OPEN ACCESS JOURNALS, <https://doaj.org/faq#definition> [<https://perma.cc/V9CH-4HD7>].

28. Nancy McCormack, *Peer Review and Legal Publishing: What Law Librarians Need to Know About Open, Single-Blind, and Double-Blind Reviewing*, 101 LAW LIBR. J. 59, 63, 68, 2009 LAW LIBR. J. 3, ¶¶ 14–15, 34–35.

29. Dan Hunter, *Open Access to Infinite Content (Or in Praise of Law Reviews)*, 10 LEWIS & CLARK L. REV. 761, 765 (2006).

30. Plotin, *supra* note 9, at 34, ¶ 8.

prestige of the author's institution.<sup>31</sup> The students also edit the articles, with little or no peer review.<sup>32</sup> Authors, for their part, seek to place their articles in the most prestigious journals.<sup>33</sup> In doing so, they are likely to submit an article to multiple journals and may withdraw an article accepted by a journal that the author does not consider prestigious enough.<sup>34</sup> Prestige of the journal is often correlated with the school's *U.S. News* ranking.<sup>35</sup>

¶15 Regardless of the lack of peer review, the student-run journals are generally cited more than peer-reviewed law journals. As Milles has noted, the most prestigious law journals are those run by law students, not those run by commercial publishers or scholarly societies.<sup>36</sup> In a survey of the 2001 to 2007 ISI Journal Citation Reports, Plotin found that 18 of the top 20 journals by impact factor over that time were student-run law reviews published by law schools.<sup>37</sup> She also found that in 2007, the majority of the top 100 journals were student run.<sup>38</sup> The Washington and Lee journal rankings show a similar pattern. For the years 2012 to 2017, no more than four peer-reviewed or refereed journals have made the top 50 journals by impact factor in any one year.<sup>39</sup>

¶16 Another problem with citation studies in law is that the science databases that offer the most robust citation metrics, such as Web of Science and Scopus, generally index only peer-reviewed journals.<sup>40</sup> Both make some exceptions in law.<sup>41</sup> As of August 2019, Web of Science indexes 155 of the top-cited law journals, including a number of student-edited law reviews.<sup>42</sup> There are, however, currently about 681 student-edited journals being published.<sup>43</sup> Including faculty-edited journals, journals produced by scholarly societies, and professionally published, peer-reviewed journals, the total number of legal journals in the United States is approximately 950.<sup>44</sup> Because Web of Science indexes only a small fraction of the currently

31. Jeffery L. Harrison & Amy R. Mashburn, *Citations, Justifications, and the Troubled State of Legal Scholarship: An Empirical Study*, 3 TEX. A&M L. REV. 45, 52 (2015).

32. Bernard Hibbitts, *Critical Years: An Opinionated History of the Law Review*, 24 SERIALS REV. 1, 1 (1998).

33. Hunter, *supra* note 29, at 767.

34. *Id.*

35. Alfred L. Brophy, *The Signaling Value of Law Reviews: An Exploration of Citations and Prestige*, 36 FLA. ST. U. L. REV. 229, 232 (2008).

36. Milles, *supra* note 26, at 629, ¶ 31.

37. Plotin, *supra* note 9, at 45, ¶ 42.

38. *Id.*

39. See *W&L Law Journal Rankings*, WASHINGTON AND LEE SCHOOL OF LAW, <https://management-tools4.wlu.edu/LawJournals/> [<https://perma.cc/Q2SD-FV24>] (click "Access prior surveys," check "Impact Factor" box for years 2012 to 2017, select "Show: All," click "Submit").

40. See *Journal Selection Process*, CLARIVATE ANALYTICS (2018), <https://perma.cc/BQ8U-FL4N>; *Content Policy and Selection*, ELSEVIER (2018), <https://www.elsevier.com/solutions/scopus/how-scopus-works/content/content-policy-and-selection> [<https://perma.cc/P2LA-85NG>].

41. See *Journal Search*, CLARIVATE ANALYTICS, <http://mjl.clarivate.com/cgi-bin/jrnlst/jlresults.cgi?PC=SS&SC=OM> [<https://perma.cc/H4TU-R49A>].

42. *Id.*

43. See *W&L Law Journal Rankings*, *supra* note 39 (click "Edit Type: Student-Edited," select "Show: All," click any ranking criteria box for 2017, click "Submit").

44. LegalTrac indexes almost 2000 titles, but many of those are bar journals or other nonscholarly magazines. HeinOnline indexes more than 3000 titles, but that number includes bar journals and historical journals. Index to Legal Periodicals and Books indexes 947 serials that it categorizes as "Academic Journals." Current Index to Legal Periodicals is more selective, indexing 589 current law journals. As of August 2019, Washington and Lee's journal ranking tool tracked 942 U.S.-based law journals.



published law reviews, it is necessarily missing a large number of the citations to these works. Consequently, citation studies conducted in law generally use either Westlaw or LexisNexis, the two largest legal databases, rather than Web of Science or Scopus. Westlaw and LexisNexis, however, contain few of the commercial journals indexed in Web of Science.

### Defining Open Access

¶17 There are many conflicting definitions of open access and no standards.<sup>45</sup> Early definitions were provided by statements drafted at three meetings. The first, the Budapest Open Access Initiative, dated February 4, 2002, states that “peer-reviewed journal literature should be accessible online without cost to readers.”<sup>46</sup> To meet this goal, it recommends two strategies: self-archiving and open-access journals.<sup>47</sup> Self-archiving is defined as authors “deposit[ing] their refereed journal articles in open electronic archives.”<sup>48</sup> It defines open access as “free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose.”<sup>49</sup>

¶18 Under the Bethesda Statement on Open Access Publishing, April 11, 2003, open access means that

author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.<sup>50</sup>

It also requires immediate deposit upon publication into at least one online repository.<sup>51</sup>

¶19 Finally, the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, promulgated October 22, 2003, uses almost the exact same definition as the Bethesda Statement, but widens the description of type of work to include not only primary scientific literature but also documents reflecting human knowledge and cultural heritage, including original research, raw data, source materials, and other documents.<sup>52</sup> Table 1 summarizes these three definitions.

¶20 All three definitions are narrow and require authors and publishers to grant wide reuse rights to readers. In the time since these statements, other definitions of

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45. Amy E. C. Koehler, *Some Thoughts on the Meaning of Open Access for University Library Technical Services*, 32 SERIALS REV. 17, 17–18, 19 (2006).

46. *Read the Budapest Open Access Initiative*, BUDAPEST OPEN ACCESS INITIATIVE (2002), <http://www.budapestopenaccessinitiative.org/read> [<https://perma.cc/DVE6-J2RU>].

47. *Id.*

48. *Id.*

49. *Id.*

50. *Bethesda Statement on Open Access Publishing*, EARLHAM COLLEGE (2003), <http://legacy.earlham.edu/~peters/fos/bethesda.htm> [<https://perma.cc/J8VJ-STBU>].

51. *Id.*

52. *The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities*, MAX-PLANCK-GESELLSCHAFT, <https://openaccess.mpg.de/Berlin-Declaration> [<https://perma.cc/AM2G-QHB3>].

Table 1

Definitions of Open Access

Statement	Type of Work	Access	Methods	Reuse Rights
Budapest	Peer-reviewed journal literature	Online at no cost to readers	Recommends self-archiving and open access journals	Read, copy, print, distribute, publicly display, search, index, feed into software
Bethesda	Primary scientific literature	Free, irrevocable, worldwide, perpetual right of access	Requires deposit into at least one online repository	Use, copy, print, distribute, publicly display, make and distribute derivative works
Berlin	Original scientific research results, raw data, source materials, etc.	Free, irrevocable, worldwide right of access	Requires deposit into at least one online repository	Use, copy, print, distribute, publicly display, make and distribute derivative works

what is called open access have broadened the term’s meaning.<sup>53</sup> One such definition of open access is “the free, immediate, online availability of research articles coupled with the rights to use these articles fully in the digital environment.”<sup>54</sup> Another states, “Open access literature is available online to be read for free by anyone, anytime, anywhere—as long as they have Internet access.”<sup>55</sup>

¶21 Researchers have largely settled on two main definitions of open access: gold and green (summarized in table 2).<sup>56</sup> The main difference between the two is whether the journal or the author makes the article available. Gold open access is provided by the journal. At a minimum, gold open access requires that journals provide “immediate full-text online access at no charge to readers.”<sup>57</sup> Under the Scholarly Publishing and Academic Resources Coalition’s (SPARC) more restricted definition, a typical gold journal would publish its peer-reviewed articles online; allow its authors to not only republish but also to post the final version of the article on personal websites, department websites, institutional repositories, and commercial services; and allow readers to freely share the final version.<sup>58</sup> The Directory of Open Access Journals (DOAJ) is even more rigid, not only requiring the Budapest definition of open access but also requiring that journals “use a funding model that does not charge readers or their institutions for access.”<sup>59</sup>

¶22 Gold open access includes both fully open access journals and hybrid journals. Hybrid journals are generally subscription journals that allow authors, for a fee, to publish articles under an open access (usually Creative Commons) license.<sup>60</sup>

53. See WALT CRAWFORD, *OPEN ACCESS: WHAT YOU NEED TO KNOW NOW* 11–12 (2011).  
54. *Open Access*, SPARC, <https://sparcopen.org/open-access/> [<https://perma.cc/44LB-BDB8>].  
55. CRAWFORD, *supra* note 53, at 1.  
56. See, e.g., Parker, *supra* note 24, at 440.  
57. CRAWFORD, *supra* note 53, at 18.  
58. See *Open Access to Scholarly and Scientific Research Articles*, SPARC, [https://sparcopen.org/wp-content/uploads/2017/04/Open-Access-Factsheet\\_SPARC.11.10-3.pdf](https://sparcopen.org/wp-content/uploads/2017/04/Open-Access-Factsheet_SPARC.11.10-3.pdf) [<https://perma.cc/6QUN-3ATS>].  
59. *Frequently Asked Questions*, DIRECTORY OF OPEN ACCESS JOURNALS, <https://doaj.org/faq#definition> [<https://perma.cc/CVX7-UJZJ>].  
60. See Pinfield, *supra* note 1, at 618, 619.



Table 2

Gold vs. Green Open Access

OA Type	Who Posts?	Version Posted	Cost to Author	Availability	When Posted?
Gold	Journal	Version of record	Maybe	Journal website May be available elsewhere depending on license	Immediately
Green	Author	Version of record Post-print Pre-print	None	Depends on license; may be available on author’s website, on an institutional repository, or on disciplinary repositories	Immediately, or after embargo period, depending on journal’s policy

Additionally, articles are made available for free to nonsubscribers on the journal website.

¶23 In contrast, green open access does not require the journal to post a freely available copy. Green access is instead a product of author self-archiving. In general, a green open access option allows an author to post some version of the article on a personal, departmental, or institutional repository or website.<sup>61</sup> The version may be the final version, the post-peer review or edited version (often called “post-print” or “accepted manuscript”), or the author’s pre-peer review draft (usually called a “pre-print”).<sup>62</sup> Posting may also be allowed on a commercial, discipline-specific repository like SSRN.<sup>63</sup> The version that the author may post might be different depending on where the article is being posted.<sup>64</sup> An embargo of six months to two years may also be imposed. Again, the length of the embargo may change depending on where the article is posted.<sup>65</sup> Hybrid journals often allow authors not paying the fee to self-archive a post-print after an embargo period.<sup>66</sup>

¶24 After a rather limited start, open access has expanded throughout the student-run law journals. In 2005, Creative Commons and Science Commons created the Open Access Law Program.<sup>67</sup> The program’s statement of principles called on law reviews to require that authors grant only “a reasonable, limited-term exclusive license,” allow authors to grant a Creative Commons to their published work, provide authors with electronic copies of the final publication to deposit in an open access repository, and to either use the program’s model publication agreement or

61. Parker, *supra* note 24, at 440.  
62. Atchison & Bull, *supra* note 1, at 132.  
63. See *Green Open Access Policy for Journals*, CAMBRIDGE UNIVERSITY PRESS, <https://www.cambridge.org/core/services/open-access-policies/open-access-journals/green-open-access-policy-for-journals> [<https://perma.cc/B7Y6-DZZ5>].  
64. See, e.g., *SAGE’s Author Archiving and Re-Use Guidelines*, SAGE PUB. (2018), <https://us.sagepub.com/en-us/nam/journal-author-archiving-policies-and-re-use> [<https://perma.cc/CP4U-TYPN>]; *Green Open Access Policy for Journals*, *supra* note 63.  
65. See *Green Open Access Policy for Journals*, *supra* note 63.  
66. See *Self-Archiving Policy*, SPRINGER, <https://www.springer.com/gp/open-access/authors-rights/self-archiving-policy/2124> [<https://perma.cc/5VNH-NX6A>].  
67. Plotin, *supra* note 9, at 42, ¶ 33.

post the law review's current agreement on its website.<sup>68</sup> In return, authors agree to attribute the journal with first publication upon any reuse.<sup>69</sup> As of October 2008, 33 law reviews had signed on.<sup>70</sup>

¶25 Two other major events followed. In 2008, the faculty of Harvard Law School unanimously voted to make its scholarship "freely available on an online repository."<sup>71</sup> The same year, a meeting between directors of major academic law libraries resulted in the Durham Statement on Open Access to Legal Scholarship.<sup>72</sup> The Statement calls on law schools to abandon print and make the definitive versions of their journals available immediately "upon publication in stable, open, digital formats."<sup>73</sup>

¶26 But even before all of this, Duke Law School began publishing new articles from its print journals on the law school website in 1998; since then, it has added all back issues.<sup>74</sup> An increasing number of journals have followed this lead, publishing their content for free on the Internet, either on their websites or in institutional repositories (or both), simultaneously with or even prior to print publication.<sup>75</sup> Recently, some schools have ceased publishing their journals in print altogether and are publishing only online.<sup>76</sup>

¶27 It is not always easy to determine whether journals that provide free access to their articles online allow republication, author deposit, or sharing. The Durham Statement calls for open publishing in repositories but does not speak to reuse rights.<sup>77</sup> Any law review that uses either the model publication agreement from AALS or the one from Science Commons does allow author self-archiving and sharing.<sup>78</sup> But even when they use an agreement allowing authors expansive reuse rights, law reviews do not always publish their policies publicly. Although signers to the Science Commons Open Law Statement promise to post their policies and

68. *Open Access Law: Principles*, SCI. COMMONS, <http://sciencecommons.org/projects/publishing/oalaw/principles>, archived at <https://web.archive.org/web/20160316040853/http://sciencecommons.org/projects/publishing/oalaw/principles> [https://perma.cc/Z3FZ-VH3T].

69. *Id.*

70. Plotin, *supra* note 9, at 42, n.91. The program seems to have ended. Although a list is still available at [https://wiki.creativecommons.org/wiki/Open\\_Access\\_Law\\_Adopting\\_Journals](https://wiki.creativecommons.org/wiki/Open_Access_Law_Adopting_Journals) [https://perma.cc/GF5W-ATBL], most Science Commons pages redirect to the main Creative Commons website, and information is no longer available there; see, e.g., *Open Access Law: Principles*, *supra* note 68, first URL (redirecting to a Creative Commons page).

71. Donovan & Watson, *supra* note 15, at 554, ¶ 2.

72. *Id.*

73. *Durham Statement on Open Access to Legal Scholarship*, BERKMAN KLEIN CTR. (2009), <https://cyber.harvard.edu/publications/durhamstatement> [https://perma.cc/867K-4AUC].

74. Danner, *supra* note 27, at 72.

75. Of the 47 student-run journals indexed in Web of Science for 2009, 14 have their full runs available for free on the Internet. Twenty-two more have all issues from 2009 or earlier available. Ten more started publishing full issues online between 2010 and 2016. Eight remain unavailable in a free version.

76. Katharine T. Schaffzin, *The Future of Law Reviews: Online-Only Journals*, 32 TOURO L. REV. 243, 248 (2016).

77. *Durham Statement on Open Access to Legal Scholarship*, *supra* note 73.

78. Bari Burke, MEMORANDUM 98-24 AALS: THE ASS'N OF AM. L. SCHS. (1998), <https://www.aals.org/deansmemos/98-24.html>, archived at <https://web.archive.org/web/20130105204051/https://www.aals.org/deansmemos/98-24.html> [https://perma.cc/RX4Y-FFCS]; *Open Access Law: Publication Agreement*, SCI. COMMONS, <http://sciencecommons.org/wp-content/uploads/oalawpub.pdf>, archived at <https://web.archive.org/web/20160319130453/http://sciencecommons.org/wp-content/uploads/oalawpub.pdf> [https://perma.cc/DLB2-DVMN].

author agreement on their websites, fewer than half have a policy or agreement posted in an obvious place on their public websites.<sup>79</sup> SHERPA, a resource for finding publishers' open access policies, has only very sparse coverage of law reviews.<sup>80</sup> There is, to date, no other central public list of law review open access policies.

¶28 DOAJ, in keeping with its rigid adherence to the Budapest definition, indexes only peer-reviewed journals, with no exception for law.<sup>81</sup> DOAJ currently indexes 248 law journals, only 4 of which are published in the United States.<sup>82</sup> Almost half of these journals (113 as of August 2019) are published in two countries: Brazil and Indonesia.<sup>83</sup> A number of student-edited law reviews were formerly included in DOAJ, including all of the law reviews published by Duke Law School.<sup>84</sup> They were removed, however, when DOAJ changed its criteria for inclusion.<sup>85</sup> Bopape similarly found that only 3 percent of the journals indexed in DOAJ were law journals.<sup>86</sup>

¶29 Nevertheless, a number of student-run journals publish their articles in full text online. Plotin found that 14 of the top 20 journals by impact factor in ISI (now included in Web of Science) between 2001 and 2007 were available online.<sup>87</sup> In addition to websites, legal scholarship is both more available and more downloaded than that of other disciplines on SSRN and Bepress's Digital Commons.<sup>88</sup> Consequently, any study using DOAJ to identify open access journals is drastically undercounting open access law journals.

¶30 But a public access policy does not matter to researchers as long as they can find what they need. Consequently, studies looking at citation rates of green open access tend to use Crawford's definition of an article that "is available to be read for free by anyone, anytime, anywhere—as long as they have Internet access."<sup>89</sup> Studies investigating a hypothesis that researchers will use the sources most conveniently accessible to them generally use a version of this definition, often marking an article open access when full text is found through a Google search on the title.<sup>90</sup>

79. Of the 37 journals listed at [https://wiki.creativecommons.org/wiki/Open\\_Access\\_Law\\_Adopting\\_Journals](https://wiki.creativecommons.org/wiki/Open_Access_Law_Adopting_Journals) [<https://perma.cc/GF5W-ATBL>], only 12 have a posted policy or author agreement. Four more either note that they are "open access" with no further definition or mention that they comply with the Open Access Law Journal Principles. Twenty more make no mention of open access or the principles and have no available author agreement. One is defunct.

80. Donovan (2014), *supra* note 18, at 3, n.5.

81. Edward T. Hart, *Indexing Open Access Law Journals or Maybe Not*, 38 INT'L J. LEGAL INFO. 19, 21 (2010).

82. See *Browse Subjects*, DIRECTORY OF OPEN ACCESS J., <https://doaj.org/subjects> [<https://perma.cc/9EJM-UE37>] (click "Law," then click "View Journals/Articles").

83. *Id.*

84. Hart, *supra* note 81, at 23.

85. DOAJ, *DOAJ to Remove Approximately 3300 Journals* (May 9, 2016), <https://blog.doaj.org/2016/05/09/doaj-to-remove-approximately-3300-journals/> [<https://perma.cc/DNW8-MLX6>]. DOAJ has published a spreadsheet listing all of the removed journals, which is linked on this post. The list includes at least 57 law journals, including five Duke Law School journals.

86. Solomon Bopape, *The State of Open Access Adoption in Legal Scholarly Communication: An Analysis of Selected Open Access Resources*, 34 MOUSAION 83, 92 (2016).

87. Plotin, *supra* note 9, at 47, ¶ 45.

88. Bopape, *supra* note 86, at 95.

89. CRAWFORD, *supra* note 53, at 1. Studies using this definition include Atchison and Bull, *supra* note 1, at 130.

90. See, e.g., Kristin Antelman, *Do Open-Access Articles Have a Greater Research Impact?*, 65 C. & RES. LIBR. 372, 375 (2004); Donovan & Watson, *supra* note 15, at 565, ¶ 36.

Other researchers looking at hybrid journals look at how individual articles are treated on the publisher's website.<sup>91</sup> Researchers skeptical of an open access citation advantage often use restrictive gold open access definitions, such as counting only all-open access journals and ignoring open access articles in hybrid journals.<sup>92</sup> Such methodologies likely undercount citations in legal journals, especially student-run law reviews.

### Previous Studies

¶31 These differences in approach likely explain the large difference in results between the Dorta-González and the Donovan studies. Dorta-González looked at gold open access journals exclusively.<sup>93</sup> Each article was classified as open access if it was published in a journal that published only open access articles.<sup>94</sup> Hybrid journals were treated as non-open access.<sup>95</sup> So any individual articles that were published as gold open access in those journals were counted with the non-open access articles. In contrast, Donovan and his coauthors conducted Google searches, and if any free version of an article was found online, it was counted as open access.<sup>96</sup>

¶32 Dorta-González determined whether a journal was open access by consulting Web of Science.<sup>97</sup> Although the Web of Science documentation does not specifically state this, the underlying journal information appears to come from Ulrichsweb.<sup>98</sup> Ulrich's documentation is similarly nonspecific, but it appears that it determines whether a journal is open access by consulting DOAJ.<sup>99</sup> As discussed above, DOAJ does not consider the vast majority of U.S. law reviews for inclusion in the directory because they are not peer reviewed. Web of Science does include some non-peer-reviewed journals in law. Even though many of those journals are available for free online, Web of Science does not mark any of them as open access. By restricting the definition of open access in this way, the Dorta-González study significantly undercounts the number of open access articles, undermining the impact of their results.

¶33 Donovan and Watson consider green open access articles in the three law journals published by the University of Georgia.<sup>100</sup> None of the journals were open access during the time period considered.<sup>101</sup> The study looked at every article pub-

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91. See, e.g., Davis, *supra* note 1; Gaulé & Maystre, *supra* note 6, at 1334.

92. See, e.g., Dorta-González, *supra* note 4, at 879; Salisbury, *supra* note 5, at 188–89.

93. Dorta-González, *supra* note 4, at 879.

94. *Id.*

95. *Id.*

96. Donovan & Watson, *supra* note 15, at 565, ¶ 36; Donovan (2014), *supra* note 18, at 7.

97. Dorta-González, *supra* note 4, at 879. In a follow-up study comparing open access and non-open access journals in Scopus, Dorta-González and Santana-Jiménez used DOAJ to determine whether journals were open access. See Pablo Dorta-González & Yolanda Santana-Jiménez, *Prevalence and Citation Advantage of Gold Open Access in the Subject Areas of the Scopus Database*, 27 RES. EVALUATION 1, 10–11 (2018).

98. See ULRICHSWEB, <https://ulrichsweb.serialssolutions.com> [<https://perma.cc/CGA6-FP8A>]. The Web of Science interface offers some detail on each journal, but a link for more information leads to Ulrich's.

99. For example, the list of open access journals indexed by Web of Science for 2017 coincides with those included in DOAJ.

100. Donovan & Watson, *supra* note 15, at 565, ¶ 34.

101. *Id.*

lished between 1990 and 2008.<sup>102</sup> Every article for which they could find any free version posted online was counted as open access.<sup>103</sup> Citation counts were obtained from *Shepard's* citation reports on LexisNexis, or from KeyCite on Westlaw if there was no *Shepard's* report.<sup>104</sup> The citation counts were compared between the open access and non-open access articles.<sup>105</sup> The follow-up study by Donovan (2014) looked at articles from 30 flagship law reviews published between 1990 and 2010, using the same methods to determine open access.<sup>106</sup>

## Methodology

¶34 Initially, I attempted to recreate the Dorta-González study. Their methodology states that the article information was exported in aggregate, sorted by subject.<sup>107</sup> Because I was exporting the data several years later, the Web of Science citation analysis reports included several more years of citations. To more closely replicate their dataset, I exported all of the article records under the Web of Science category *Law* and removed the post-2014 citations by hand. The number of articles was slightly smaller than what Dorta-González pulled in 2016, likely due to changes in the journal list.

¶35 Their methodology states they determined open access at the journal level. However, as of May 2018 there are no fully open access journals listed in Web of Science for law in 2009, so I was unable to replicate their comparison of articles from fully open access journals to all other articles.

¶36 Web of Science also categorizes open access articles at the article level as gold or green. Gold open access includes gold articles in hybrid journals, which were excluded by Dorta-González. First, I compared the citations for open access and non-open access articles, counting only gold open access. I then compared all gold and green open access articles, as determined by Web of Science, against all other articles. Finally, I did the comparison once again using an expanded definition of open access.

¶37 To determine which journals were open access under this expanded definition, I looked at the website of each of the 145 journals in the dataset. All journals that offered full text of every article in the years examined (2009 and 2014) on their websites or institutional repositories were counted as open access. To more closely replicate the methodology of Dorta-González, and in contrast to Donovan and Watson, articles in non-open access journals were not checked for self-archiving.

¶38 One shortcoming of the Dorta-González study is that it used no control for quality of publication. Only 3 percent of the articles were open access, and all open access articles were in open access, peer-reviewed journals.<sup>108</sup> Because of the nature of law publishing, the peer-reviewed open access journals are unlikely to be ones that are heavily cited. The most prestigious legal journals are those published by the

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102. *Id.* at 565, ¶ 35.

103. *Id.* at 565, ¶ 36. This methodology was also used by Atchison and Bull. See Atchison & Bull, *supra* note 1, at 130.

104. Donovan & Watson, *supra* note 15, at 565, ¶ 37.

105. *Id.* at 566, ¶ 41.

106. Donovan (2014), *supra* note 18, at 7.

107. Dorta-González, *supra* note 4, at 880.

108. *Id.* at 886.

top-ranked law schools, which are not peer reviewed.<sup>109</sup> Consequently, the open access articles counted by Dorta-González are not in the top-cited journals. Here, however, under the expanded definition of open access many, but not all, of the top-cited journals are included in the list of open access journals. The remainder of the journals are much lower on Washington and Lee's list of the top-cited journals.

¶39 To help mitigate the effect of journal quality on the results, I divided the journals by publisher into five different types. Commercial journals are those published by large publishing companies, society journals are published by professional societies and nonprofits, student-run journals are the student-run general subject flagship journals, specialty journals are student-run topical journals, and other contains any other type of publisher, including small commercial publishers and university presses.<sup>110</sup> Table 3 summarizes these five types of publishers' journals.

## Results/Discussion

¶40 At the time of Dorta-González's research, there were 3865 law articles indexed in Web of Science for 2009. Three percent were open access. At the time of this research, there were 3821 law articles indexed in Web of Science for 2009, 3 percent of which are categorized in Web of Science as gold open access. Web of Science also includes green open access. Adding green and gold open access results in 4.1 percent of the articles being open access. Under the expanded definition of open access, including all of the open access student journals and the articles that Web of Science marked as open access, 28.5 percent of the articles were open access. Of the 145 law journals represented in that dataset, no journals were open access.<sup>111</sup> Under the expanded definition of open access discussed above, 39 of the journals (26 percent) are open access.

¶41 Because the dataset has changed, it is impossible to exactly replicate the Dorta-González study. Under the current dataset, however, the results (summarized in table 4) are completely different. The current set has only 44 fewer articles but the same percentage (3.0 percent) of gold open access. The citation counts, however, are completely different. The citation rate for open access articles has more than quadrupled, from 2.17 per article to 9.33. The citation rate for non-open access articles has also increased, from 3.65 to 4.49. Including green open access articles increases the citation advantage further, to 118.55 percent.

¶42 Without knowing which journals were changed between the studies, it is difficult to know why the results are so different. One possibility is the small number of open access articles in the dataset. Given the small number of open access articles, substituting the articles from two obscure open access titles with a similar number of hybrid journals that are much more heavily cited could completely change the results.

¶43 Some clues, however, are available. Dorta-González counted only fully open access journals as open access, so the dataset must have contained some open access

109. Brophy, *supra* note 35, at 232.

110. Cambridge University Press and Oxford University Press journals are counted as commercial journals because both publishers have large journal publishing operations with similar policies to large publishers like Taylor and Francis, Sage, and Wiley. In contrast, the University of Chicago Press publishes only a few journals. Its three journals indexed in Web of Science are also in Westlaw.

111. The complete 2009 volume of *European Journal of International Law* and almost complete volume of *ICON* are open access, although not every volume of each is.



Table 3

Types of Publishers’ Journals

Publisher Type	Example Journals	Example Publishers
Commercial	<i>American Journal of International Law</i>	Cambridge University Press
	<i>Asia Pacific Law Review</i>	Taylor and Francis
	<i>International Journal of Law and Economics</i>	Elsevier
	<i>Law and Social Inquiry: Journal of the American Bar Foundation</i>	Wiley
Other	<i>Annual Review of Law and Social Science</i>	Annual Reviews
	<i>Journal of Maritime Law and Commerce</i>	Jefferson Law Book Co.
	<i>Military Law Review</i>	Judge Advocate General’s Legal Center & School
	<i>Supreme Court Review</i>	University of Chicago Press
Society	<i>American Journal of Comparative Law</i>	American Society of Comparative Law
	<i>Family Law Quarterly</i>	American Bar Association
	<i>Journal of Legal Education</i>	American Association of Law Schools
	<i>Judicature</i>	Duke Law Center for Judicial Studies
Specialty	<i>Cornell International Law Journal</i>	Cornell Law School
	<i>Ecology Law Quarterly</i>	UC Berkeley School of Law
	<i>Journal of Criminal Law &amp; Criminology</i>	Northwestern University School of Law
	<i>Stanford Journal of International Law</i>	Stanford Law School
Student-Run	<i>Duke Law Journal</i>	Duke Law School
	<i>Harvard Law Review</i>	Harvard Law School
	<i>New York University Law Review</i>	New York University School of Law
	<i>Virginia Law Review</i>	University of Virginia School of Law

Table 4

Open Access Citation Advantage by Definition of Open Access

	2009		Average Citations in 2009–2014			OA Citation Advantage (%)
	Total articles	% OA	OA	Non-OA	Ratio OA/ Non-OA	
Dorta-González	3865	3.00	2.17	3.65	0.59	-40.50
This study (gold OA)	3821	3.00	9.33	4.49	2.08	107.80
This study (all OA)	3821	4.10	9.66	4.42	2.19	118.55
Expanded OA	3821	28.50	5.07	4.46	1.12	13.68

journals. One journal in the current dataset, *Estudios Constitucionales*, was in DOAJ until February 2007, when it was removed. Its 16 articles in the dataset received four total citations between 2006 and 2014. Eight of those articles are currently marked as open access in Web of Science. Other gold open access articles in the dataset now include the complete 2009 volumes of the *European Journal of International Law* and *ICON-International Journal of Constitutional Law*, and issue one of the 2009 volume of the *Journal of Law and Society*.<sup>112</sup> Eighty of the 115 open access articles in the dataset are from these three titles. They account for 743 of the 1073 gold open access citations.

¶44 Web of Science now has slightly fewer articles for 2009 (3821 down from 3865). Using the expanded definition of open access, the percentage of open access articles jumps from 3 percent to 28.5 percent. For 2014, Web of Science now indexes 227 fewer articles. However, there is a similar jump in the number of open access articles. In 2014, Dorta-González found about an 11 percent increase in the number of articles, with a 50 percent decrease in open access articles. Under Web of Science's current indexing, there is a 6 percent increase in the number of total articles from 2009 to 2014. This is probably the result of both a changing journal list on Web of Science and DOAJ's journal delisting program. However, under the expanded definition of open access, there is an enormous increase in the percentage of open access articles, from 26.54 percent in 2009 to 42.47 percent in 2014. This is mainly due to a 46 percent increase in the number of student-run journals that became open access between 2009 and 2014. During this period, 18 of the Web of Science-indexed journals started posting their new content, bringing the total from 39 to 57.

¶45 With the increase in number of open access articles, the average citations for open access articles more than doubled, from 2.17 to 5.07, changing the finding for open access citation advantage from a 40.5 percent disadvantage to a 13.68 percent advantage. While a radical change, this still falls short of what Donovan and Watson found. It is, however, fairly close to the 11.4 percent advantage that Donovan (2014) found for tier 1 journals.<sup>113</sup> Table 5 summarizes the number of open access articles and citations for each type of journal publisher.

¶46 Here, controlling for journal type, the results are again different. Using the Web of Science data, the student-run flagship journals show a slight (8.66 percent) disadvantage, while the greatest gains were for commercial journals (96.9 percent).

¶47 Web of Science carries 31 of Washington and Lee's top 50 most-cited journals from 2009 to 2016.<sup>114</sup> Sorted by combined score, Washington and Lee's top 50 is almost entirely composed of student-edited journals. The lone exception is *Supreme Court Review*, published by the University of Chicago Press, ranked at 27

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112. It appears that *ICON's* volumes are generally made open access about six years after publication, while certain volumes or issues of the other two titles may be made open access at some point after publication.

113. Donovan (2014), *supra* note 18, at 21.

114. Of Washington and Lee's top 50 journals by combined score, Web of Science is missing *William and Mary Law Review*, *Boston College Law Review*, *Florida Law Review*, *Cardozo Law Review*, *Connecticut Law Review*, *North Carolina Law Review*, *Emory Law Journal*, *UC Davis Law Review*, *Washington and Lee Law Review*, *Lewis & Clark Law Review*, *Virginia Journal of International Law*, *Ohio State Law Journal*, *Harvard Journal of Law & Technology*, *Wake Forest Law Review*, *American University Law Review*, *Arizona Law Review*, *Berkeley Technology Law Journal*, *Yale Journal on Regulation*, and *University of Pennsylvania Journal of Constitutional Law*.

Table 5

Open Access Citation Advantage by Type of Journal

Journal Type	2009		Average Citations in 2009–2014			OA Citation Advantage (%)
	Total articles	% OA	OA	Non-OA	Ratio OA/ Non-OA	
Commercial	1729	8.33	9.98	5.09	1.96	96.22
Other	310	28.71	1.22	3.36	0.36	-63.57
Society	409	6.36	1.69	2.75	0.61	-38.56
Specialty	323	65.02	3.28	3.05	1.07	7.46
Student-Run	1050	64.57	4.82	5.28	0.91	-8.66

in 2016 and 17 in 2017. What is more, almost all of the top 300 journals are student run. Commercially published journals do not show up in any number until after 500.

¶48 Although Web of Science indexes many of the highest-cited journals, it still indexes only about 15 percent of currently published U.S. law journals. With 85 percent of journals unrepresented, it is likely significantly undercounting citations even to the journals that it does index. The journals in Donovan (2014) produced an average of 31.4 citations per non–open access article and 35.9 citations per open access article.<sup>115</sup> Here, using the Web of Science citation data, the average was only 5.07 for open access and 4.46 for non–open access. Donovan (2014)’s study covered a 15-year period, almost three times as long as the 5-year period here. That study found a citation half-life of 7 years for non–open access articles and 5 years for open access articles.<sup>116</sup> Given a 5 to 7 year half-life, roughly half of the citations for these articles should be in this dataset, which covers 6 years. Accounting for this, Web of Science counts only about one-third the number of citations that Donovan (2014) found on LexisNexis.

¶49 Additionally, Web of Science indexes almost twice as many commercial journals as it does student-run journals. Of the 91 non-student-run journals it carries, only three are in Washington and Lee’s top 100. Five more are in the top 200. Fifty-one are ranked below 500. Twelve are not ranked. Only three are open access. In contrast, the 54 student-run journals on the service are overwhelmingly top-ranked and open access. Thirty-seven are top 100. Only five are ranked below 300. Thirty-six are open access.

¶50 In contrast, Donovan (2014) worked with a list of 30 student-run journals that included a number of the top journals and some journals that were less heavily cited.<sup>117</sup> Only nine journals appear on both lists. Of those, one (*California Law Review*) was open access for the entire time period studied. One more (*Columbia*

115. Donovan (2014), *supra* note 18, at 11.  
116. *Id.* at 11.  
117. *Id.* at 9, tbl.1.

*Law Review*) is still not. The remainder became open access during the period studied. Only three had a double-digit open access advantage.

¶51 Donovan (2014) found only an 11 percent open access advantage for first-tier journals, but found the greatest gains for second- and third-tier journals. The student-run journals in Web of Science are mostly in the first tier, so the sets are directly comparable. Donovan (2014) found minimal cumulative advantages over 15 years, with some journals having an overall open access disadvantage. Therefore, an 8 percent disadvantage for one year may not be too far from their general results.

¶52 The result may, however, be due to the large number of open access articles in the dataset. More than half of the articles in this category and in specialty journals were open access, which may depress the open access advantage. Donovan (2014) speculated that specialty journals would have a similar open access advantage to second- and third-tier journals. But instead, the gains were closer to what they found for first-tier journals.

¶53 The commercial publications had the greatest gains, which would support the convenience hypothesis. In general, the commercial publications are the least visible, as they are behind paywalls and are not in the most-used legal databases. Consequently, they have the most to gain from the increased visibility of open access.

¶54 Finally, the society and the other publications had large disadvantages for open source. This seems to be largely a product of the small sample size. All of the open access society publications were in one low-ranked title. The bulk of the open access other publications were in three titles, two of which are not ranked by Washington and Lee.

## Conclusions

¶55 Contrary to what Dorta-González found, there is at least a small open access citation advantage for law journal articles. When using their methodology with a more accurate count of open access law journals, there was a 13.68 percent citation advantage for law journals, considerably higher than the 40 percent disadvantage that they found. While a large increase, it is a lot lower than what Donovan and Watson found in their initial study.

¶56 This could suggest that self-selection is at work, as could the dramatic increase in citation to commercial journals when hybrid gold and green access articles are counted as open access. However, Donovan (2014) used a mixture of fully open access and non-open access journals, but they had a number of self-archived articles, which should offset any self-selection bias in their original study. The second study did find a slightly lower citation advantage, but still one far above the one here using the Web of Science data.

¶57 This difference in citation databases appears to be the factor most skewing the results. Donovan (2014) compared open access and non-open access articles across the same journals, all of which were flagship law reviews that are likely to be cited by other flagship law reviews, of which Westlaw and LexisNexis have excellent coverage. Additionally, their study included top-tier, highly cited journals as well as mid-tier, less-cited journals. The Web of Science journal list is made up of about one-quarter highly cited, student-run flagship law journals, a small number of student-run specialty journals, and a large number of low-cited commercial jour-

nals. Additionally, because of the short journal list, Web of Science appears to be missing about two-thirds of citations to law scholarship, which could skew the results.

¶58 One further factor is likely the time periods covered. Dorta-González covers only articles published in 2009. Donovan (2014) looks at a 15-year publication window. To truly see the difference that the citation source makes, they need to be compared over the same time period.

¶59 In sum, this study reconfirms that there is a citation advantage for open access law journal articles. It also suggests that Web of Science is inadequate for obtaining citation metrics for student-run law journals, the venue where most legal scholarship in the United States is published. Dorta-González posited that they could find no generalized open access citation advantage. What they also seem to have found is that there is no generalized methodology for conducting an open access citation study across disciplines. Open access studies can easily be biased by the definition of open access used. They may also be biased by the choice of citation data source and its indexed journal list. Further study is necessary to determine the extent of bias.